INCH-POUND

MIL-PRF-83536A
AMENDMENT 2
29 October 1999
SUPERSEDING
AMENDMENT 1
19 December 1997

PERFORMANCE SPECIFICATION

RELAYS, ELECTROMAGNETIC, ESTABLISHED RELIABILITY,
GENERAL SPECIFICATION FOR

This amendment forms a part of MIL-PRF-83536A, dated 21 March 1997, and is approved for use by all Departments and Agencies of the Department of Defense.

The attached insertable replacement pages as listed below are replacements for stipulated pages. When the new pages have been entered in the document, insert the amendment as the cover sheet to the specification.

Replacement page	Page replaced
15	15
16	16

PAGE 4

* Paragraph 3.5.2, after c: add "After the cover has been welded to the header, no rework shall be performed that requires removal of this cover from the header."

PAGE 21

Paragraph 4.7.3.2.1, third line: add "C7 and C8" between "C6" and "every".

PAGE 22

Table VII, C3 Life: Delete "(highest rated dc, 50,000 cycles)" and substitute "(highest rated dc, 50% of rated life)".

Table VII, C5: after "Rupture" add "(one dc and one ac)".

PAGE 23

Table VII, C7: after "Time current relay characteristics" add "(one dc and one ac)".

PAGE 25

Paragraph 4.8.5, delete and substitute: "4.8.5 Dielectric withstanding voltage (see 3.10). Relays shall be tested as specified in 4.8.5.1 and in accordance with 4.8.5.2. Testing in accordance with 4.8.5.2 is not applicable to group A, group B, group C1, group C5, C6, C7 or C8 inclusive."

PAGE 36

Paragraph 4.8.18 Life (see 3.23). After second sentence add: "At the option of the manufacturer double throw relays may have the normally open and normally closed contacts separately. If the normally open and normally closed contacts are tested separately an additional sample shall be provided for this option and both samples shall be required to meet all other tests in the test sequence."

PAGE 39

Paragraph 4.8.20 first line: delete "300,000" and substitute "400,000".

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous amendment.

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Review activities:
Navy - AS
Air Force - 99
NASA - NA

Preparing activity:
DLA - CC

(Project 5945-1073)

4.3.4 Testing devices. Devices used in the testing of relays shall not load the contacts above 10 mA resistive at 6 V dc or peak ac maximum open circuit unless otherwise specified herein.

4.3.5 Mounting relays for ambient temperature tests. When the relays are subjected to the testing specified in 4.8.19 (intermediate current), they may be mounted on a heat sink in accordance with the following:

a. Each relay may be attached by its normal mounting means to a 0.063 inch (1.59 mm) thick minimum, flat aluminum plate heat sink. The heat sink shall be designed to place every relay in the center of its own square space whose total surface area (both sides) is eight times the outside surface area of the relay, excluding mounting. Relays without mounts shall be held to the heat sink with a metal strap 0.250 inch (6.35 mm) wide by 0.015 inch (0.38 mm) maximum thickness. The heat sink assembly shall be suspended by twine or other nonheat conducting material. The leads shall not constitute a heat sink.

b. Chamber temperature shall be controlled to maintain the temperature at the specified ambient extremes (see 3.1).

4.3.6 Methods of examination and test. Application of coil power to relays under test shall be such that plus polarity is applied to the color coded terminal when applicable; or to the lower numbered terminal when color coding is not used. Testing of latching relays shall be repeated with the relay in each operated position.

4.3.7 Tolerances. Unless otherwise specified (see 3.1), all electrical, environmental, and mechanical parameters shall have a tolerance of ±10 percent.

4.3.8 Alternate test equipment. Test circuits and test equipment herein are intended to provide guidance to the relay manufacturer. Use of any alternate test circuits and / or test equipment shall be approved by the qualifying activity prior to use.

4.3.9 Test equipment and inspection facilities. The manufacturer shall establish and maintain a calibration system in accordance with ANSI/NCSL Z540-1, ISO-10012-1, or equivalent system as approved by the qualifying activity.

4.4 Qualification inspection. Qualification inspection shall be performed at a laboratory acceptable to the Government (see 6.3) on sample units produced with equipment and procedures normally used in production.

4.4.1 Qualification. Qualification shall be granted at the "L" or "M" FR initially and shall be based on results of the qualification inspection specified in table II. A certification of construction to the materials requirements of 3.4, and the interface and construction requirements of 3.5 shall accompany the submission of qualification inspection results to the qualifying activity.

4.4.1.1 Sample size. The number of relays to be subjected to qualification inspection shall be as specified in table II. The sample shall be selected from a production run and shall be produced with equipment or procedures normally used in production. The qualification sample shall be as defined in table II.

4.4.2 Inspection routine. Sample units shall be subjected to qualification inspection outlined in table II, in the order shown, except that group Q2 through group Q10 inclusive, may be conducted concurrently. All sample units shall be subjected to the inspections of Q1. These sample units shall then be divided into nine groups as specified in table II and subjected to the inspection specified for their particular group.

4.4.3 Failures. Failures in excess of those allowed in table II shall be cause for refusal to grant qualification approval.

TABLE II. Qualification inspection.

Inspection	Requirement paragraph	Test method paragraph	Number of sample units to be inspected	Number of failures allowed
Q1				
Visual and mechanical inspection (internal) 1/	3.1 and 3.31	4.8.1	All sample units	0
Run-in screening	3.7	4.8.2		
Internal moisture	3.28	4.8.23		
Solderability (3 sample units) 2/	3.8	4.8.3		
Dielectric withstanding voltage	3.10	4.8.5		
Insulation resistance	3.11	4.8.6		
Electrical characteristics	3.12	4.8.7		
Visual and mechanical inspection (external) (dimensional check on 2 sample units only)	3.1, 3.29, 3.30, 3.31	4.8.1		
Seal	3.9	4.8.4		
Q2				
Thermal shock	3.13	4.8.8	4	1
Resistance to solvents	3.26	4.8.21		
Shock (specified pulse)	3.14	4.8.9		
Vibration (sinusoidal)	3.15	4.8.10.1		
Vibration (random)	3.15	4.8.10.2		
Acceleration	3.16	4.8.11		
Terminal strength	3.17	4.8.12		
Dielectric withstanding voltage	3.10	4.8.5		
Insulation resistance	3.11	4.8.6		
Electrical characteristics	3.12	4.8.7		
Seal	3.9	4.8.4		
Q3				
Resistance to soldering heat	3.18	4.8.13	4	1
Salt spray or salt atmosphere	3.19	4.8.14		
Dielectric withstanding voltage	3.10	4.8.5		
Insulation resistance	3.11	4.8.6		
Electrical characteristics	3.12	4.8.7		
Seal	3.9	4.8.4		
Q4				
Overload (see table X) 3/	3.20	4.8.15	4	1
Life (rated resistive load and voltage from overload test) 3/	3.23	4.8.18		
Dielectric withstanding voltage	3.10	4.8.5		
Insulation resistance	3.11	4.8.6		
Electrical characteristics	3.12	4.8.7		

See footnotes at end of table.